

POPOV, A.I.; SMIRNOVA, T.I.

The subsurface ice in the lacustrine - marsh deposits in the
northern part of Western Siberia. Vest. Mosk. un. Ser. 5: Geog.
19 no.2:32-39 Mr-Apr '64. (MIRA 17:4)

1. Kafedra geografii polyarnykh stran i glyatsiologii Moskovskogo
universiteta.

LIVSHITS, S.Ye.; BREKHOV, A.M.; SMIRNOVA, T.I.

Problems of coding initial information in network planning
and administration. Trudy LIEI no.55:89-95 '65.

(MIRA 18:11)

NAMESTNIKOV, A.F.; SMIRNOVA, T.K.

Manufacture of new types of canned baby food. Kons. i ov.
prom. 14 no.6:10-11 Je '59. (MIRA 12:8)

1. TSentral'nyy nauchno-issledovatel'skiy institut konservnoy i ovoshche-
sushil'noy promyshlennosti (for Namestnikov). 2. Moskovskiy ordena
Lenina pishchevoy kombinat im. A.I. Mikoyana (for Smirnova).
(Food, Canned) (Infants--Nutrition)

S/196/63/000/002/008/026
E194/E155

AUTHORS: Kostyukov, N.S., and Smirnova, T.M.

TITLE: The behavior of ceramic dielectrics exposed to very hard gamma radiation

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika, no.2, 1963, 13, abstract 2 B 73. (Tr. Gos. issled. elektrokeram. in-ta, no.4, 1960, 120-127)

TEXT: The influence of γ -radiation with an energy of 30 to 260 MeV on electrical porcelain grade M-23 (M-23), on capacitor material based on TiO_2 grade M-75, BaTiO_3 and high-frequency steatites grade TK-21, CK-1 (SK-1), C-61 (S-61), was studied. Chemical analyses of these materials are given and possible (published) photo-nuclear reactions of the component elements are described. By analysis of the activity curves of irradiated material, determinations are made of the half-decay times of the components, and hypotheses are proposed concerning the nature of photo-nuclear reactions. A general tendency to reduction of ρ was observed in irradiated specimens of grade M-23. If these specimens were irradiated with quanta with an energy of 1.3 MeV
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The behavior of ceramic dielectrics.. S/196/63/000/002/008/026
E194/E155

(at a rate of 2 mrads/sec) in the range of temperature between normal ambient and 773 °K (500 °C), the value of ρ during irradiation was always lower than before irradiation. As the temperature increases the difference in ρ before and after irradiation becomes very slight. This is because the number of carriers formed during irradiation increases less at the higher temperatures. The value of ρ for grade M-75 on irradiation with γ -quanta of energy 1.3 MeV is higher than before irradiation. The increase in ρ in the low-temperature range is explained by the circumstance that for grade M-75, ionization during irradiation increases the rate of accumulation of space charge. If grade M-75 is irradiated with γ -quanta with an energy of 50-250 MeV for 40 h, then in the temperature range from normal ambient to about 393 °K (120 °C), ρ diminishes by about 75% (before irradiation ρ is approximately 10^{13} ohm.cm). This is explained by an increase in the concentration of structural defects caused by transfer of part of the ions into the internodes under the action of secondary photo-nuclear particles. When specimens of BaTiO₃ are irradiated for 56 hours by γ -quanta of 130-250 MeV, the values of the piezomoduli, ρ and $\tan \delta$ do not change. The difference between

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the results obtained and those of F.F. Rogers and also
L. Vodop'yanov and Skanavi, is explained by the low neutron
densities which result from nuclear photo-effects.
6 figures. 6 references.

[Abstractor's note: Complete translation.]

Card 3/3

SMIRNOVA, M.M., inzh.; ZAKHAROV, P.P., inzh.; KOSTYUKOV, N.S., kand. tekhn.
nauk; KHARITONOV, F.Ya., kand. tekhn. nauk

Deformation of ceramic products under the effect of their own
weight during firing. Stek.lker. 22 no.10:33-35 0 '65.

(MIRA 18:12)

L. Gosudarstvennyy nauchno-issledovatel'skiy elektrokeramicheskiy
institut.

21161

S/032/61/027/004/025/028
B103/B2C1

15.2300 1273, 1136, 1160

AUTHORS: Valeyev, Kh. S., Kostyukov, N. S., and Smirnova, T. M.

TITLE: Measuring apparatus for viscosity with continuous recording of the torsion angle and of temperature

PERIODICAL: Zavodskaya laboratoriya, v. 27, no. 4, 1961, 472-474

TEXT: The authors worked out the device of viscosity measurement between 10^8 and 10^{14} poises for ceramic substances (refractories, electrical and radiotechnical ceramics) in the plastic state between 20 and 1550°C . The torsion rate of a cylindrical specimen is measured under constant load. Since the viscosity of ceramic substances as well as of structured liquids depends not only on temperature, but on time as well, this property must be determined both under dynamic and static conditions. The authors' instrument serves for determining these two dependences. Furthermore, it can be used to record the deformations of the specimen while cooling (in the reverse motion). In measurements under dynamic conditions, temperature and deformation are recorded by means of two

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B103/B201

Measuring apparatus for viscosity ...

light beams on photopaper inserted in a drum by Kurnakov [Abstracter's note: not described in the text]. The deformation of the specimen is only recorded under static conditions. The torsional force is in this case applied to the specimen at the instant when the temperature of recording is attained. Cylindrical specimens with a neck 10 mm in diameter and 8 mm in height, serving as the working piece, are used. The torsional moment is transmitted via the upper and the lower groove to the thickened parts of the specimen. A scheme of the apparatus is presented in Fig. 1. A Silit oven 2 rests upon the lifting table 1. The torsion system 3 and the table are fastened to brackets in the floor and in the wall, respectively. An asbestos-cement plate 4 protects system 3 against the heat. The wall chest houses the temperature-recording mirror galvanometer 6 (Type M-21 (M-21)), two light sources 7, mirror 8, Kurnakov drum 9, shunt 10 as a connection of thermocouple 11 to 6, autotransformer 12, and Warren motor 13 with reductor 14 for raising the voltage in the heater elements of the oven. Fig. 2 presents the construction of the torsion system. The fixed cylinder 1 made of refractory ceramics is fastened to the lower steel plate 2 by means of four screws 3. The upper plate 4 is linked to the lower one by means

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of four pins 5. Two arms 6 welded on plate 4 support the whole system hanging from bracket carrier 7 in the wall. A mobile cylindrical bar 8 made of refractory ceramics is by means of pin 9 connected to balance arm 10 via shaft 12 which rotates freely in bearing 11. Drive pulley 13 is fixed to the upper end of the shaft 13 and weights 14 are connected by means of threads guided over rolls 15. Three adjusting screws 17 regulate height and inclination of mirror 16. To mount the sample in the oven, the latter is lowered by a worm drive, until the clamping device is freely accessible. Drive pulley 13 is turned by about $\frac{1}{3}$ of the full turn, and the specimen is inserted between the mobile and the fixed clamping device. The oven is then lifted such that the specimen is brought into its center, whereupon the heater elements are heated with adjustable voltage. The drum rotates at speeds of 8, 2, 0.5, and 0.21 rpm. The temperature is measured prior to recording, and the temperature curve is calibrated. Pyrometer of the type МПП-154 (MPP-154) is used for this purpose. Recording has been performed by the authors at 0.5 rpm. Fig. 3 presents the course of the deformation curve of an electrotechnical porcelain specimen under dynamic conditions. Torsion began at 990°C. The curve shows a distinct break between 1060 and 1110°C. In the

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mathematical interpretation, the straight part of the deformation curve is extended to the left (x-axis), and divided into equal, 5-mm long sections by means of vertical lines. The distances from the x-axis to the points of intersection of the vertical sections K_n and K_{n-1} with the deformation curve indicate the curvature at given instants. The deformation angle $\Delta\varphi$ within the time $\Delta\tau = 125$ sec is determined therefrom, and next, the viscosity is determined in poises by means of calculation formulas. Calculation results permit constructing $\log \eta$ as a function of temperature or time. There are 4 figures and 2 Soviet-bloc references.

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy elektrokeramicheskiy institut (State Scientific Research Institute of Electroceramics)

Card 4/7

AUTHOR: Smirnova, T. M. (Engineer); Kostyukov, N. S. (Candidate of technical

ACC NR: AP6033376

to 1100°C in 100° intervals. Measurement error was less than 10% and average deviation was 10-15%. Virtual viscosity was determined on a laboratory unit with continuous temperature and torsion angle registering equipment. Overall viscosity measurement error did not exceed 20%. The results of these experiments show that the virtual viscosity of M-23 porcelain at 700°C and above is less than 10^{13} poises and is 10^{12} poises at 1000°C. At a virtual viscosity of 10^{13} poises, glass enters a viscous fluid state. This is accounted for by the fact that the glass phase in porcelain is 50-55% and as the viscosity of the glass phase decreases, the strength of the porcelain also decreases. This occurs approximately at 900°C where the bending stress of porcelain decreases and porcelain specimens undergo severe deformation at 1000°C. Bending stress is not as great at 700°C for steatites as for porcelain. Virtual viscosity for steatites is 10^{13} poises at 700°. SK-1 steatite specimens buckled at 900°C and at 50% of the destructive force for the original specimen. SNB specimens did not bend significantly at 800°C. The virtual viscosity for SNB specimens was 10^{13} poises at 800°C. Mullite corundum MG-2 specimens retained their strength characteristics up to 700°C. GB-7 alumina on the other hand started losing its mechanical strength at 600°C and reached 40% of its original strength at 900°C. This strength reduction is caused by the composition of the glass phase. On the other hand, corundum microlite with a small glass phase retained its strength up to 1000°C. Orig. art. has: 3 figures, 1 table.

SUB CODE: 11, 09/ SUBM DATE: None/ ORIG REF: 004

Card 2/2

ZUBKOVA, Tamara Aleksandrovna; SMIRNOVA, Tat'yana Nikolayevna;
MAKSIMOVA, Yu.A., retsenzent; SOSULINA, V.N., redaktor; MEDVEDEVA, L.A.,
tekhnicheskiiy redaktor

[Knitting] Viazanie na spitsakh. Moskva, Gos. nauchno-tekhn. izd-vo
M-va legkoi promyshl. SSSR, 1957. 198 p. (MLRA 10:5)
(Knitting)

ACCESSION NR: AP4039019

S/0072/64/000/005/0025/0029

AUTHORS: Kharitonov, F.Ya. (Engineer); Kostyukov, N.S. (Candidate of technical sciences); Smirnova, T.M. (Engineer)

TITLE: Thermoplastic properties and sintering behavior of ceramic electric insulators

SOURCE: Steklo i keramika, no. 5, 1964, 25-29

TOPIC TAGS: sintering, porcelain, steatite, viscosity, surface tension, pore size, thermoplastic property, electric insulator, ceramic insulator

ABSTRACT: Excluding the effects of the external factors, the durability of ceramic insulators is dependent on the physical, technical, electric and mechanical characteristics of the material. These characteristics depend to a great extent on the degree of sintering of the ceramic material. This work is concerned with the factors and regularities which govern the degree of sintering. Sintering is accompanied by the formation of closed pores in a viscous silicate melt. Bubbles of gas in such a melt are affected by surface tension and intermolecular attraction forces. The relation-

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ACCESSION NR: AP4039019

ship between these forces determines the mean time of the existence of a bubble in the melt. The investigated materials were one steatite -- composition TK-21 -- and two porcelains -- M-23 and M-Z-A.-- which are close in composition to industrial materials and two porcelains -- MG-12-ch and MG-12-Zv -- which differed by a higher content of silica. The viscosity of these materials was determined dynamically and statically. The viscosity is lowered as well as the change of viscosity with an increase in the rate of heating. Since the surface tension changes only 4 - 6 dynes/cm when the temperature is increased 100 - 150C, then at the same duration of baking, but with decrease of viscosity by two orders of magnitude (during overbaking), the size of pores increases also by two orders of magnitude. Thus, increase of temperature is accompanied by a sharp decrease in viscosity due to the increase of pore sizes. Similar effects may be observed in the presence of temperature gradients in the furnace during the baking of large size insulators. Increase of the duration in the maximum temperature zone and the presence of vanadium and chromium oxides in the batch cause analogous effects. Orig. art. has: 4 tables, 4 figures and 14 equations.

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ACCESSION NR: AP4039019

ASSOCIATION: Gosudarstvennyy nauchno-issledovatel'skiy elektrokeramicheskiy institut [GIEKI] (State Scientific Research Institute of Electrical Insulation Ceramics)

SUBMITTED: 00

DATE ACQ: 10Jun64

ENCL: 00

SUB CODE: MT

NR REF SOV: 005

OTHER: 001

Card 3/3

ZUBKOVA, Tamara Aleksandrovna; SMIRNOVA, Tat'yana Nikolayevna; GUSEVA, A.I.,
red.; KNAKNIN, M.T., tekhn.red.

[Hand knitting with needles] Viazanie na spitsakh. Moskva, Izd-vo
nauchno-tekhn.lit-ry RSFSR, 1960. 311 p.

(MIRA 14:1)

(Knitting)

ACCESSION NR: AT4029929

S/3087/62/001/000/0159/0168

AUTHOR: Zakharov, N. D.; Smirnova, T. N.

TITLE: The effect of some compound and technological factors on the cold resistance of rubber

SOURCE: Yaroslavl'. Tekhnologicheskii institut. Khimiya i khimicheskaya tekhnologiya, vol. 1, 1962, 159-168

TOPIC TAGS: vulcanization temperature, cold resistance, sulfur dose, filler, butadiene-nitro caoutchouc, SKN-40 caoutchouc, SKN-26 caoutchouc, SKS-30 caoutchouc

ABSTRACT: The authors investigated the effect of the type of filler, the character of the vulcanizing group and the vulcanization temperature on the cold resistance of rubber. Three types of caoutchouc were used: SKN-40, SKN-26, and SKS-30. The results of the investigation are presented in tables and graphs. It was shown that butadiene-nitro caoutchouc differed substantially in their behavior at low temperatures under the influence of the type of filler, sulfur dose, and vulcanization temperature from butadiene styrene caoutchouc (nonpolar caoutchouc). It was shown that with the use of the respective filler, the decrease in the sulfur dose, a choice of accelerator and an increase in vulcanization temperature substantially

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ACCESSION NR: AT4029929

increased the indices of cold resistance of rubbers based on nitro caoutchouc; hence, it followed that in comparing the rubber formulas based on nitro caoutchouc it was impossible to disregard these factors. Some explanations were given of the characteristics of behavior of nitro caoutchouc at low temperatures. Orig. art. has: 3 tables and 3 figures.

ASSOCIATION: none

SUBMITTED: 00

DATE ACQ: 29Apr64

ENCL: 00

SUB CODE: CH

NO REF SOV: 010

OTHER: 002

Card 2/2

SMIRNOVA, T.N.

A new subfamily of lower Cretaceous dallinids. Paleont.
zhur. no.2:114-120 '60. (MIRA 13:7)

1. Moskovskiy gosudarstvennyy universitet im. M.V.Lomonosova.
(Belaya Valley (Krasnodar Territory)--Brachiopoda, Fossil)
(Gubs Valley--Brachiopoda, Fossil)

SMIRNOVA, T.N.

Ontogenesis of the loop of brachiopods as revealed by Lower
Cretaceous Dallinidae. Biul.MOIP.Otd.geol. 36 no.6:112-113 N-D
'67. (MIRA 15:7)

(Brachiopoda, Fossil)

ZAKHAROV, N.D.; SMIRNOVA, T.N.

Effect of some formulas and technological factors on the frost
resistance of rubber. Khim. i khim. tekhn. 1:159-168 '62.

(MIRA 17:2)

SMIRNOVA, T. N.

New data on Lower Cretaceous Dallinidae (Brachiopoda).
Paleont. zhur. no.2:97-105 '62. (MIRA 15:10)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

(Brachiopoda, Fossil)

SMIRNOVA, T.N.

New subspecies *Thecidiopsis* (*thesidiopsis*) *tetragona* (Römer).
Vest.Mosk.un. Ser.4:Geol. 17 no.3:54-57 My-Je '62. (MIRA 15:6)
(Brachiopoda, Fossil)

SMIRNOVA, T.N.

Systematics of Lower Cretaceous rhynchonellids. *Biul. MOIP.*
Otd.geol. 37 no.3:133-134 My-Je '62. (MIRA 15:10)
(Brachipoda, Fossil)

SMIRNOVA, T.N.

Distribution of brachiopods in Lower Cretaceous sediments
in the Crimea and Northern Caucasus. Biul. MOIP Otd. geol.
37 no.6:132 N-D '62. (MIRA 16:8)

ZONENSHAYN, L.P.; REUTEL'S-USPENSKAYA, I.A.; SAFRONOV, V.S.; NEYMAN, V.B.;
GENDLER, V.Ye.; CHURIKOV, V.S.; YEREMIN, N.I.; KOGAN, B.S.; YAKOVLEVA,
M.N.; LANGE, O.K.; KABANOV, G.K.; KUZNETSOVA, K.I.; SINITSYNA, I.N.;
SMIRNOVA, T.N.; VENKATACHALAPATI, V.; MASLAKOVA, N.I.; BELOUSOVA, Z.D.;
YAKUBOVSKAYA, T.A.; YURINA, A.L.; RYBAKOVA, N.O.; MORZOVA, V.G.;
BAPASH, M.S.; PONAREV, V.I.; NIKONOV, A.A.

Activity of the Geological Sections of the Moscow Naturalists'
Society. Biul. MOIP. Otd. geol. 39 no.6:183-187 N-E '62.
(MIRA 18.3)

1. SMIRNOVA, T. N.
2. USSR (600)
4. Veterinary Hospitals
7. Veterinary clinic of the Moscow State Hippodrome. Konevodstvo 23, No. 3, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953. Unclassified.

BUBNOV, V.S.; KEYRIM-MARKUS, I.B.; SMIRNOVA, T.N.

Use of potassium bromide crystals for the dosimetry of gamma
radiation. Med.rad. 5 no.3261-64 '60. (MIRA 13:12)
(GAMMA RAYS—MEASUREMENT) (POTASSIUM BROMIDE)

SMIRNOVA, T.N.; SERGEYEVA, V.D.; DOLBIN, V.V.

X-ray diffraction study of the effect of organosulfur compounds
in oil on the surface treatment and initial wear of metal
specimens. Trudy LIEI no.29:33-38 [i.e. 39] '62.

(MIRA 16:6)

(X-ray diffraction examination) (Metals--Testing)
(Mechanical wear)

L 23460-65 EMT(m)/EMP(j) Pc-4 RM

ACCESSION NR: AR4048182

S/0081/64/000/009/S081/S081

SOURCE: Ref. zh. Khimiya, Abs. 9S537

AUTHOR: Zakharov, N. D.; Smirnova, T. N.

TITLE: Effect of certain changes in composition and manufacturing techniques on the frost resistance of rubber

CITED SOURCE: Uch. zap. Yaroslavl. tekhnol. in-ta, v. 1(8), 1962, 159-168

TOPIC TAGS: rubber composition, synthetic rubber, rubber sulfur content, rubber frost resistance, vulcanization temperature, rubber filler / SKS rubber, SKN rubber

TRANSLATION: The authors studied the effect of the type of filler, the S content and the vulcanization temperature on the frost resistance of SKN-26, SKN-40 and SKS-30 rubber. The effect of these factors on the behavior of SKN and SKS-30 at low temperatures was different. The frost resistance of SKN rubber can be increased by the use of an appropriate filler, by decreasing the S content, by the choice of accelerator or by increasing the temperature of vulcanization. From authors' summary

Cord 1/2

SOSKOV, Yu.D.; UBAYEV, Kh.U.; SMIRNOVA, T.N.

New alkaloid-bearing plants of Central Asia and Kazakhstan.

Izv. Otd. biol. nauk AN Tadzh. SSR no.1:45-57 '63.

(MIRA 17:10)

1. Botanicheskiy institut AN Tadzhikskoy SSR.

SMIRNOVA, T. N., kandidat fiziko-matematicheskikh nauk.

X-ray analysis of plastic deformations in metals subjected to
static and dynamic compressions. Trudy LIEI no.10:168-174 '55.
(MLRA 9:8)
(Metallography) (Strains and stresses)

USSR/Solid State Physics - Structure of Deformable Materials.

E-9

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11852

Author : Smirnova, T.N., Terminasov, Yu.S.

Inst : Leningrad Engineering-Economic Institute, USSR.

Title : X-ray Diffraction Investigation of Plastic Deformation of Metals in Static and Dynamics Compression.

Orig Pub : Izv. AN SSSR, ser. fiz., 1956, 20, No 6, 664-670

Abstract : An investigation was made of steel specimens St2 and U8, of commercial iron, and of aluminum. The specimens were exposed to X-ray diffraction. The X-ray patterns were examined in a MF-2 microphotometer. The crystallite distortions were estimated from the width of the interference lines, and the elementary distortions of the atomic lattice from the ratio of the areas of the corresponding lines. For all the investigated materials, the crystallite

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med specimens. This fact can be explained by thermal relaxation, which plays a great role in dynamic deformation.

Investigation of the Purity of the Spectrum of X-ray SOV/32-25-5-39/56
Tubes for Structural Analysis

purities under 5% on the anode does not form any additional
lines in Debye-diagrams. There is 1 table.

ASSOCIATION: Leningradskiy inzhenerno-ekonomicheskii institut (Leningrad
Economic Institute for Engineers)

Card 2/2

KUBLANOVSKAYA, V.N.; SMIRNOVA, T.N.

Zeros of Hankel functions and of certain other functions connected
with these functions. Trudy mat. inst. 53:186-191 '59.

(MIRA 12:9)

(Functional analysis)

SMIRNOVA, T.N. (Leningrad)

Computation and storage of polynomial transformations on the
computer "Strela". Zhur. vych. mat. i mat. fiz. 1 no.5:903-
916 S-O '61. (MIRA 14:10)

(Electronic digital computers)
(Polynomials)

ACCESSION NR: AR4039318

S/0044/64/000/003/V086/V086

SOURCE: Ref. zh. Matematika, Abs. 3V485

AUTHOR: Smirnova, T. N.

TITLE: The polynomial work control device and the performance of analytic calculations on the EVM

CITED SOURCE: Tr. Matem. in-ta. AN SSSR, 1962, v. 66, 77-112

TOPIC TAGS: polynomial work control device, EVM analytic calculation, algebraic polynomial, trigonometric polynomial, recurrent object, polynomial operation, Strela ⁿ order polynomial determinant, 2nd order differential equation, Ritts method, compressed elliptical plate stability

TRANSLATION: In works performed at the Leningrad department of the mathematical institute im. Steklov AN SSSR under the direction of L. V. Kantorovich, a general method was worked out for the automation of calculations in different classes of objects. In this work, as an initial class of objects, the author introduces a

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class of polynomials (algebraic and trigonometric), numbers, and operations on them. For the initial class, a specific system of storage and enumeration of objects in the machine's memory is worked out. The computational plan in the polynomial class is represented in the form of a sequence of lines which give the work control device instructions on constructing recurrent objects (polynomials and numbers). The author cites a detailed list of polynomial operations as well as a unit-scheme and a program for the polynomial work control device for the machine "Strela". As examples of the application of the work generator computational plans for three problems are cited: 1) the calculation of an n^{th} order polynomial determinant; 2) the solution of a second order differential equation by the Ritts method; 3) the problem on the stability of a compressed elliptical plate. C. Lukhovitskaya.

DATE ACQ: 22Apr64

SUB CODE: MA

ENCL: 00

Card 2/2

NIKOLAYEV, A.V.; KOLESNIKOV, A.A.; SMIRNOVA, T.F.

Extraction system $\text{La}(\text{NO}_3)_3 - \text{NH}_4\text{NO}_3 - \text{H}_2\text{O} - (\text{C}_4\text{H}_9\text{O})_3\text{PO}$.
Dokl. AN SSSR 159 no.2:379-382 N 164. 2 (MIRA 17:12)

1. Institut neorganicheskoy khimii Sibirskogo otdeleniya AN SSSR.
2. Chlen-korrespondent AN SSSR (for Nikolayev).

L 02344-67 ENT(1)/ENT(m)/T/EWP(t)/ETI IJP(c) GG/JW/JD/JG

ACC NR: AR6025733

SOURCE CODE: UR/0058/66/000/004/A068/A068

AUTHOR: Smirnova, T. P.; Toropovskaya, I. N.; Kuznetsov, F. A.

72
B

TITLE: Investigation of the stability of thin metallic films

SOURCE: Ref. zh. Fizika, Abs. 4A576

REF. SOURCE: Sb. Simpozium. Protsessy sinteza i rosta kristallov i plenok poluprovodnik. materialov, 1965. Tezisy dokl. Novosibirsk, 1965, 36

TOPIC TAGS: metal film, silver, thermodynamic characteristic, thermal stability, solid kinetics, annealing, metal aging

ABSTRACT: The question of using the e.m.f. method to the investigation of the thermodynamic properties of thin films is considered. This method makes it possible to estimate quantitatively the aggregative instability of films and afford the opportunity of finding the connection between the quantities determining the instability and the kinetic characteristics of structural relaxation processes. Processes of thermal aging of films are investigated and the dependence of the thermodynamic characteristic of silver films on the annealing temperature is obtained. [Translation of abstract].

SUE CODE: 20,11

Card 1/1

L 23695-66 EWT(1)/EWT(m)/ETC(f)/ENG(m)/F/ENF(t)/ETC(m)-6 IJP(c) JD/JN/GG

ACC NR: AR6005217

SOURCE CODE: UR/0058/65/000/009/EO47/EO47

AUTHOR: Kuznetsov, F. A.; Smirnova, T. P.

TITLE: Thermodynamic characteristic of thin films

SOURCE: Ref. zh. Fizika, Abs. 9E411

REF SOURCE: Sb. Vychisl. sistemy. Vyp. 15, Novosibirsk, 1965, 39-46

TOPIC TAGS: thermodynamic property, metal film, silver, thermal activation, relaxation process

TRANSLATION: An electrochemical method is proposed for measuring the emf for the investigation of the thermodynamic properties of thin films (F). Using a silver film as an example, it is shown how to estimate the aggregative instability quantitatively with the aid of the given method. The dependence of the thermodynamic activity of the film on its thickness is obtained. The substance and the film begin to differ noticeably in thermodynamic characteristics from the compact state at a thickness of 5000 Å. The dependence of the velocity of the process of the structural relaxation on the activity of the film, the intensity of its interaction with the electrolyte, and the heat treatment are all considered. A. Porotikov.

SUB CODE: 20

Card 1/1

L 36956-66 EWT(m)/EWP(t)/ETI IJP(c) JN/JW/JG	
ACC NR: AP6014895	SOURCE CODE: UR/0076/65/039/012/2973/2977
AUTHOR: Kuznetsov, F. A.; Smirnova, T. P. 35. B	
ORG: AN SSSR, Siberian Branch, Institute of Inorganic Chemistry (AN SSSR, Sibirskoe otdelenie, Institut neorganicheskoy khimii)	
TITLE: Thermodynamic properties of silver films 27 10	
SOURCE: Zhurnal fizicheskoy khimii, v. 39, no. 12, 1965, 2973-2977	
TOPIC TAGS: thermodynamic property, metal film, silver	
ABSTRACT: The properties of films produced by vacuum spraying often change with time. This is due to the fact that condensates are often formed under conditions which deviate from the equilibrium. The aim of the present article is to find a general method for quantitative evaluation of the instability of a film. In the general case, the relaxation process can be described by the equation	
$A_L \rightarrow A_\Delta, \quad (1)$	
where A_L is the substance in the film; A_Δ is the substance in a state corresponding to a minimum of the free energy which can be identified with a compact state. As a measure of the instability of the film we	
Card 1/2	UDC: 541.13

L 36956-66

ACC NR: AP6014895

adopt the difference in the free energies in the above states

$$G_A - G_L = \Delta G_{\text{relax}} \quad (2)$$

Starting with the above statement of the problem, the article derives expressions for the thermodynamic stability of the film. It also presents an expression for the dependence of the thermodynamic activity of films produced under the same conditions on their thickness. Orig. art. has: 12 formulas and 5 figures.

SUB CODE: 20/ SUBM DATE: 23Aug64/ ORIG REF: 003/ OTH REF: 002

Card 2/2 *llb*

Smirnova, T. S.

USSR/Solid State Physics - Solid State Theory. Geometric Crystallography, E-2

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34579

Author: Belov, N. V., Neronova, N. N., Smirnova, T. S.

Institution: None

Title: The 1651 Shubnikov Group

Original Periodical: Tr. In-ta. kristallogr. AN SSSR, 1955, No 11, 33-67

Abstract: The Shubnikov groups -- spatial antisymmetry groups, "generalized Fedorov groups" -- are used in the theory and practice of the interpretation of crystal structures using harmonic analysis (Referat Zhur - Fizika, 1956, 28383). A derivation of the Shubnikov groups by the "classical method" is given (Belov, N. V., Tr. Inst. kristallogr. AN SSSR, 1951, No 6, 25-68). Using the definition of the "colored" translation -- antisymmetry pitch definition, the authors derive all the possible Bravais lattices for the Shubnikov groups and give the theorems necessary for the derivation of the groups. Many examples, analyzed in detail, illustrate the method of the derivation. The results previously made by A. M. Zamorzayev (Generalization of Fedorov Groups, Dissertation, 1951) mathematical derivation of groups are compared with the independently derived value by the "class" method leads to the number 1651. A list of all the groups by syngonies is given.

1 of 1

- 1 -

70-3-1/20

AUTHOR: Belov, N.V., Neronova, N.N. and Smirnova, T.S.

TITLE: Shubnikov groups (Shubnikovskiy gruppy)

PERIODICAL: "Kristallografiya" (Crystallography), 1957,
Vol. 2, No. 3, pp. 315 - 325 (U.S.S.R.)

ABSTRACT: 1 651 Shubnikov groups are presented in the new international notation, prefaced by few fundamental theorems, which govern their derivation.

The derivation of these groups is easily performed if we start from two-coloured translation groups; 36 such groups exist, of which 22 are two-coloured and 14 are ordinary Bravais lattices.

An obvious theorem states that with a two-coloured lattice every (two)-coloured element of symmetry either coincides with a non-coloured element of the same kind (plane, axis, centre) or alternates with it. In the notation of such Shubnikov groups it is sufficient to place behind the symbol of the coloured lattice only non-coloured elements of symmetry, i.e. one of the Fedorov groups.

With the non-coloured lattice, i.e. when we have the ordinary Bravais lattice, we have in the notation coloured elements. Introduction of them is governed by two simple theorems. According to the first one, odd elements of

Card 1/3

Shubnikov groups (Cont.)

70-3-1/20

symmetry (threefold axes) can be only uncoloured or grey, i.e. Shubnikov groups with these elements of symmetry do not exist. According to the second, if we have a finite or infinite two-coloured (black-white) pattern and then reconstitute the black half of components for the white ones, we obtain one of the ordinary (one-coloured) Fedorov groups. This means that when the lattice is an ordinary Bravais lattice all two-coloured groups can be derived by systematic substituting of one, two or three independent symbols in the appropriate Fedorov group by the two-coloured symbols.

A complete list is given of the 1 651 Shubnikov groups (pp. 318 - 325), which includes also the 230 Fedorov groups and an equal number of grey groups. Two-coloured elements are denoted by an apostrophe. Grey groups are denoted by an additional 1'. This symbol does not appear in cubic groups, where we consider it appropriate to displace this apostrophe to the symbol of the (odd) axis 3.

The derivation of Shubnikov groups was first accomplished in 1953, by A.M. Zamorzaev (2,3,4). In 1954 the authors derived them by the more crystallographic method, which had been used in a short textbook of Fedorov groups by N.V.Belov. In these two papers one can find all the theorems which are

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Shubnikov groups (Cont.)

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of use in this derivation.

This is an almost complete translation of the text.

There are 1 table and 6 references, all of which are Slavic.

ASSOCIATION: Institute of Crystallography, Ac.Sc. U.S.S.R.
(Institut Kristallografii, AN SSSR)

SUBMITTED: March 9, 1957.

AVAILABLE: Library of Congress

Card 3/3

SOV/70-3-5-22/24

AUTHORS: Donnay, G., Belov, N.V., Neronova, N.N. and Smirnova, T.S.

TITLE: On the Shubnikov Groups (O Shubnikovskikh gruppakh)
(Letters to the Editor)

PERIODICAL: Kristallografiya, 1958, Vol 3, Nr 5, pp 635-636 (USSR)

ABSTRACT: Letter from the first author. Baltimore, USA, April 12, 1958:
It is suggested that in the deduction of the 36 P_a groups of the Shubnikov (black and white) groups 12 groups are not distinct but are only repetitions in different orientations of others. 12 other groups are thought to have been omitted.
Derivations of the groups 387 ($P_{a\text{ccm}}$) and 388 ($P_{a\text{bmb}}$) are taken as examples. It is found that $P_{a\text{bmb}}$ must be replaced by $P_{a\text{maa}}$. The co-ordinates of the black and white equivalent points in the 3 groups are listed. All co-ordinates of $P_{a\text{bmb}}$ can be transformed into those of $P_{a\text{ccm}}$ by the following matrix: the co-ordinates of the black and white points are exchanged. No matrix will

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On the Shubnikov Groups

SOV/70-3-5-22/24

transform co-ordinates in $P_{a\text{maa}}$ into those in $P_{a\text{ccm}}$.

The simple rule is that if the x- co-ordinates are identical for two settings connected by a transformation matrix, then the two P_a -symbols will correspond to

different settings (aspects) of the same Shubnikov group.

The groups following are therefore doublets (numbers as in Trudy Inst. Kristallog., 1955, Vol 11, p 33):

372, 371; 374, 373; 377, 375; 380, 378; 385, 384;
388, 387; 390, 389; 392, 391; 394, 393; 395, 396;
400, 399; 402, 403.

The following groups should be added $P_{a\text{maa}}$, $P_{a\text{ncb}}$,

$P_{a\text{bmm}}$, $P_{a\text{baa}}$, $P_{a\text{mcb}}$, $P_{a\text{naa}}$, $P_{a\text{bcm}}$, $P_{a\text{bnn}}$, $P_{a\text{mcn}}$,

$P_{a\text{nca}}$, $P_{a\text{nmn}}$, $P_{a\text{mnn}}$.

Reply from the other authors, Moscow, July 4, 1958:

These mistakes have already been acknowledged and corrected in Kristallografiya, 1957, Vol 2, Nr 3, pp 315-25.

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On the Shubnikov Groups

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Canonical forms of the 12 additional groups listed above are given, together with the group numbers and equivalent groups. All are preferred in the setting P_a as above.

There are 2 Soviet references.

SUBMITTED: July 11, 1958

Card 3/3

SMIRNOVA, T.S.; STRELKOV, Yu.A.; TIHOPEYEV, V.A.; SHUL'MAN, S.S.

Nasal cavities of bony fishes as a habitat of parasites. Zool.
zhur. 43 no.11:1649-1658 '64. (MIRA 18:11)

1. Zoologicheskii institut AN SSSR, Leningrad.

SMIRNOVA, T.S.

Bottom fauna of the Kanda Bay of the White Sea. Gidrobiol.
zhur. 1 no.4:27-33 '65. (MIRA 18:10)

1. Leningradskiy gosudarstvennyy universitet.

LEYTMAN, M.Z.; ALFEROVA, V.B.; KUZ'MINOVA, M.L.; SLAVINA, Kh.M.;
ZHDAKOVA, L.D.; MOKEYEVA, A.D.; BOGACHEVA, R.I.; GINZBURG, G.M.;
GOTGIL'F, M.M.; SMIRNOVA, T.T.

Study of the effectiveness of subcutaneous immunization
against dysentery with Chernokhvostov's alcohol vaccine.
Trudy Tash. NIIVS 5:59-71'62. (MIRA 16:10)
(DYSENTERY —PREVENTIVE INOCULATION)

DUKEL'SKAYA, N.M.; SMIRNOVA, T.V.

Diftoran, a new means of rodent control. Vest. Mosk. un. Ser.
6: Biol., pochv. 16 no.4:3-7 J1-Ag '61. (MIRA 14:7)

1. Kompleksnaya laboratoriya po izucheniyu sredstv i sposobov
bor'by s vrednymi zivotnymi i boleznyami rasteniy Moskovskogo
gosudarstvennogo universiteta.

(RODENTICIDES)

(FLUORINE ORGANIC COMPOUNDS)

66258

SOV/181-1-7-14/21

~~24(6)~~ 24.7700

AUTHORS: Mochan, I. V., Smirnova, T. V.

TITLE: On the Method of Measurement of the Nernst Effect

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 7, pp 1112-1114 (USSR)

ABSTRACT: As found for hole-type germanium in reference 1 the relation between the Nernst constant Q , the field strength H and the temperature T for $\frac{1}{H_0} \sim u \sim T^{-2.3}$ (u = mobility) is also valid in p-germanium. The change of $\frac{1}{H_0}$ as a function of temperature depends mainly on the type of contact between the germanium sample and the measuring wires. H_0 = field strength for $Q = 0$. Due to the present investigation it may be concluded that the said effect ($\frac{1}{H_0} \sim T^{-2.3}$) may be explained by a Hall effect caused by currents circulating near the electrodes. These currents cause additional potential differences, if the Nernst potential differences are measured. 2 thin copper wires and 2

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On the Method of Measurement of the Nernst Effect

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thermocouples (copper-constantan) were used for measurement, a tin drop serving to fasten the wires to the germanium sample. The production technique of electrodes is commonly known. As shown by controlling measurements no change in volume of the the sample occurred after annealing the electrodes (30 min, 400 - 450°C) in vacuum. As found by experiments the observed effect (additional positive potential difference) is positive in all cases, also when using a hole-type germanium sample. The effect is found to decrease quickly if the diameter of the tin drop is diminished. The theoretical computation of this additional effect with respect to its size was tried by Yu. N. Obraztsov. To avoid the temperature gradient in the drop the shape of a cross was given to the germanium sample, the electrodes being fixed at the front side of the longer beam. Comparing the results obtained for both kinds of samples and subtracting the additionally observed effects it is noticed that the course of $\frac{1}{H_0}$ as a function of temperature may only be explained by the specially small area of contact between sonde and germanium. The observed dependence is not influenced by

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On the Method of Measurement of the Nernst Effect

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fastening the electrodes by indium contacts or without tin drop (copper or platinum electrodes). The measuring results are graphically represented. The work was shared by L. S. Stil'bans and B. Ya. Moyzhes. There are 3 figures and 1 Soviet reference.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad (Institute of Semiconductors of the AS USSR, Leningrad) ✓

SUBMITTED: July 31, 1958

Card 3/3

67386

24.7700

24(6), 24(1)

SOV/181-1-9-4/31

AUTHORS: Mochan, I. V., Obraztsov, Yu. N., Smirnova, T. V.

TITLE: Investigation of Interaction of Holes in p-Germanium With Vibrations of the Acoustic Branch

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 9, pp 1351 - 1359 (USSR)

ABSTRACT: The authors investigated the temperature dependence of the phonon part of the thermo-emf α_{ph} and its change in the magnetic field $\Delta\alpha_{ph}$ in germanium. $\alpha_{ph} \sim \frac{\bar{\tau}_{ph}}{\bar{\tau}_e T}$, where $\bar{\tau}_{ph}$ denotes the averaged free-path time of the phonons interacting with electrons, and $\bar{\tau}_e$ that of the electrons. As is shown, the investigation of these effects makes it possible to determine the mean free time of the holes τ'_e , corresponding to single-phonon scattering on longitudinal sound vibrations. The experimental setup used for the measurements is discussed on the basis of figure 1. The p-type samples investigated were cut off from one single crystal in the following manner:

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Investigation of Interaction of Holes in p-Germanium
With Vibrations of the Acoustic Branch

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1) $[100] \parallel \nabla T$, $[011] \parallel \vec{H}$; 2) $[011] \parallel \nabla T$, $[100] \parallel \vec{H}$; 3) $[110] \parallel \nabla T$, $[111] \parallel \vec{H}$; 4) $[111] \parallel \nabla T$, $[211] \parallel \nabla H$. The n-type sample investigated for comparative purposes was measured in parallel to the temperature gradient which included an angle of 15° with the $[110]$ direction. A measurement of the Hall effect yielded equal carrier concentration for all p-type samples ($4 \cdot 10^{13} \text{ cm}^{-3}$), for n-Ge $0.9 \cdot 10^{13} \text{ cm}^{-3}$. Figures 2 and 3 illustrate the determination results of the temperature dependence of the thermoelectric effect. Figure 2 shows $\alpha_{ph}(T)$ for p- and n-Ge, figure 3 $\Delta\alpha(T)$ for p-Ge (hyperbolas). From figure 2 it follows $\alpha_{ph} \sim T^{-2.2}$ for p- and n-Ge, in which case (4) is obtained in general: $\frac{\bar{\tau}_{ph}}{\bar{\tau}_e T} \sim T^{-n}$. The investigation results of the longitudinal thermomagnetic effect at 200 - 5000 oe are given in 3 diagrams and 1 table. As may be observed from the table, in formula (4) the mean error in n is about 10%. The connection between $\bar{\tau}_e$

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Investigation of Interaction of Holes in p-Germanium
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and T is near the $\bar{\tau}_e' \sim T^{-3/2}$ required by theory. Consequently, the experimentally observed dependence of the hole mobility in p-germanium can be explained only by assuming some other scattering mechanism to play the principal part, apart from the considered scattering on acoustic vibrations. There might be, for example, scatterings on optical vibrations. There are 6 figures, 1 table, and 20 references, 6 of which are Soviet.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of
Semiconductors of the AS USSR, Leningrad)

SUBMITTED: February 4, 1959

4

Card 3/3

Smirnova, T.V.

S/181/60/002/05/08/041
B008/B058

AUTHORS: Obraztsov, Yu. N., Mochan, I. V., Smirnova, T. V.

TITLE: The Phononic Transverse Thermomagnetic Nernst Effect¹ in p-Type Germanium

PERIODICAL: Fizika tverdogo tela, 1960, Vol. 2, No. 5, pp. 830-835

TEXT: The dependence of the phononic part Q_{ph} of the Nernst constant on the magnetic field strength was numerically computed for p-type germanium with regard to the transitions between the bands of light and heavy holes. Further, the authors considered the dependence of the mean free time of the holes τ_{ph} on the wave vector q . These results are compared with the data obtained by the authors for p-type germanium in the temperature range 96-143°K and magnetic fields of up to 5,500 gauss. The curve computed from equation (3) for the ratio between the concentrations of light and heavy holes is shown in Fig. 1, and the dependence of the Nernst constant Q on the magnetic field was measured for comparison (Fig. 3). The effect of contacts on the Nernst voltage measured was eliminated by the use of

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The Phononic Transverse Thermomagnetic
Nernst Effect in p-Type Germanium

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B008/B058

cruciform samples (Fig. 2). The relevant curves recorded in the temperature range 96-143°K are shown in Fig. 3. The authors thank A. I. Ansel'm and G. Ye. Pikus for discussing the paper and reading the manuscript. There are 3 figures and 15 references: 6 Soviet, 2 German, and 7 English.

ASSOCIATION: Institut poluprovodnikov AN SSSR, Leningrad
(Institute of Semiconductors AS USSR Leningrad)

SUBMITTED: August 1, 1959

Card 2/2

✓B

27083 S/181/61/003/009/015/039
B102/B104

26.253✓
AUTHORS:

24.7600
Mochan, I. V. and Smirnova, T. V.

TITLE:

Study of the thermomagnetic and galvanomagnetic properties of p-type PbTe

PERIODICAL:

Fizika tverdogo tela, v. 3, no. 2, 1961, 2659-2666

TEXT: The authors measured thermo-emf, electric conductivity, Hall effect, and transverse Nernst effect in 4 specimens of pure p-type PbTe. One specimen was coarse crystalline, the others were single crystals with different orientation. The impurity carrier concentrations were between $5 \cdot 10^{17}$ and $1 \cdot 10^{18} \text{ cm}^{-3}$. After heat treatment at 300°C to which all specimens were subjected, the carrier concentration slightly decreased. The measuring arrangement and the method employed were described already earlier (I. V. Mochan et al. FTT, I. 1351, 1959). The authors measured the temperature dependences of the thermo-emf (α), of the Hall constant (R), of the conductivity (σ), and of the transverse Nernst effect (ϵ), furthermore, the Hall mobility ($\mu_H = 0.85 R\sigma$), and the Nernst mobility

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($u_n = 16e\hbar/3\pi k$). Specimen no. 1 was studied in a series of measurements made between room temperature and 460°K , in a second series between 30 and 530°K . The specimens 2-1, 2-2, 2-3 were studied only in the range 100 - 300°K . It was found that in the second series of measurements R was larger and σ smaller than in the first series which is ascribed to a decrease in the impurity carrier concentration. This is also indicated by the change of the sign of Q which took place at a temperature which was 10° lower than in the first series. In the range of mixed conductivity Q was determined from

$$Q = -\frac{3\pi}{16} \frac{k}{e} u_+ \left\{ \frac{1 + v^2 b^3 - \left(\frac{2(\Delta E_0 + \beta T)}{kT} + 7 \right) b(1+b)v}{(1+bv)^2} \right\}, \quad (1)$$

where $v = n_-/n_+$ and $b = u_-/u_+$, ΔE_0 is the forbidden band width at 0°K , β is the temperature coefficient of ΔE . The values which hold in the impurity

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Study of the thermomagnetic ...

region were calculated by substitution of the Hall mobility of the holes and by extrapolation according to the law $u_H \sim T^{-2.5}$. v was calculated with $\beta = 4 \cdot 10^{-4}$ eV and n_0 , the concentration of the impurity carriers, was determined by relation $n_0 = \frac{1-v}{\sqrt{v}} c \exp(-\Delta E/2kT)$, $c = 2(2\pi mkT)^{3/2}/h^3$. The irreversible change of all characteristic parameters, which occurred in specimen no. 1 during the first series of measurements although it was less heated than during annealing, agrees with the results of T. L. Koval'chik and Yu. P. Maslakovets (ZhTF, 26, 2417, 1956). While $u_H \sim T^{-a}$ was well satisfied in the entire range, a deviation from the law $u_N \sim T^{-b}$ (a and b are given in the Table) was observed below 140°K. An analysis of the results showed that the scattering from the impurity ions would be bound to distort the course of the Nernst mobility much more strongly than was observed experimentally. This is explained by the assumption of an additional scattering mechanism, e.g. scattering from optical vibrations. The authors thank Yu. N. Obraztsov for revision of the manuscript and for discussions. I. M. Tsidil'kovskiy, Ye. D. Devyatkova, and I. A. Smirnov

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Study of the thermomagnetic ...

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B102/B104

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are mentioned. There are 4 figures, 1 table, and 15 references: 5 Soviet and 9 non-Soviet. The four most recent references to English-language publications read as follows: R. Allgaier, W. Scanlon, Phys. Rev., 111, 1029, 1958. W. Allgaier, Phys. Rev., 112, 829, 1958. W. Scanlon, Solid State Phys., 9, 83, 1959. R. Brebrick, R. Allgaier, Journ. Chem. Phys., 32, 1826, 1960.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: April 6, 1961

Legend to the Table: (1) number of specimen, (2) orientation with respect to the axes x,y,z; (3), (4) R in cm^3/coul ; (5), (6) n_0 in cm^{-3} ; (7), (8) $2u_H$ in $\text{cm}^3/\text{v. sec}$; (9), (10) $2u_N$ in $\text{cm}^3/\text{v. sec}$. (11) u_H/u_N , (12) a , (13) b

The values with * are mean values. (a) coarse crystalline specimen, (b) series II. The current or thermal flux were oriented in the X-direction, the magnetic field in the Z-direction, the voltage was measured in the Y-direction.

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S/181/62/004/004/028/042
B102/B104

AUTHORS: Mochan, I. V., Obratsov, Yu. N., and Smirnova, T. V.

TITLE: Determination of the effective electron mass in InSb from thermo-emf measurements in a strong magnetic field

PERIODICAL: Fizika tverdogo tela, v. 4, no. 4, 1962, 1021-1028

TEXT: It is proposed to determine the effective mass m^* from the thermo-emf in strong magnetic fields, since, if the fields are strong enough, i.e., $\omega\hbar/c \gg 1$, the emf is independent of the scattering mechanism, which is unknown in most cases. If the energy ϵ is a quadratic function of the absolute value of the quasimomentum p , the thermo-emf is field-independent; if also electron and field quantization can be neglected ($\hbar\omega/kT \ll 1$), the thermo-emf can be given as $\alpha_{\infty} = \pm \frac{k}{e} (5F_{3/2}/3F_{1/2} - \mu^*)$; $F_{3/2}$ and $F_{1/2}$ are the Fermi integrals and $\mu^* = \mu/kT$ is the reduced chemical potential; ω is the cyclotron frequency and u is the carrier mobility. In the case of non-degeneracy, $\alpha_{\infty} = k/e(5/2 - \mu^*)$ and $\mu^* = -\ln[2(2\pi m kT)^{3/2}/h^3 n]$. For

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InSb, the isoenergetic surfaces of the conduction band are spheres and $\epsilon(p)$ is not quadratic. Then

$$a_{\infty} = \frac{k}{e} \left[\frac{\int_0^{\infty} x x_0^{3/2} \frac{\partial f_0}{\partial x} dx}{\int_0^{\infty} x_0^{3/2} \frac{\partial f_0}{\partial x} dx} - \mu^* \right]. \quad (7)$$

$$x = \frac{\epsilon}{kT}; \quad x_0 = \frac{p^2}{2m_0^* kT}; \quad n = \frac{4}{\sqrt{\pi}} \left(\frac{2\pi m_0^* kT}{h^2} \right)^{3/2} \int_0^{\infty} \sqrt{x_0} \frac{dx_0}{dx} f_0(x) dx \quad (7a)$$

$$f_0 = \frac{1}{e^{x-\mu^*} + 1}.$$

f_0 is the equilibrium distribution function. For Fermi degeneracy,

$$a_{\infty} = \frac{\pi}{2} \frac{k}{e} \frac{2m^*(p_F)}{p_F^2} kT. \quad (8)$$

where the quasimomentum $p_F = h \sqrt{3n/8\pi}$. These relations can be used to

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determine $\alpha(p)$ experimentally when measuring the thermo-emf and the Hall constant in completely degenerate samples of different concentrations. The authors used the relations to determine the effective mass on the bottom of the band when measuring the thermo-emf in non-degenerate samples:

$\alpha_{\infty} = f(m_0, E_g, \Delta)$, E_g being the forbidden-band width and Δ the spin-orbital splitting. The relations $\alpha_{\infty} = \frac{k}{e} \left[\frac{5}{2} + \frac{15}{2} b_1 \gamma - \frac{45}{4} a \gamma^2 - \mu_0^2 \right]$,

$b_1 = d_1 - d_2 + 1$; $a = 1 + \frac{3}{2} (d_2 - d_1) + d_1^2 + \frac{5}{2} d_2 d_1 - \frac{5}{2} d_2^2$; $d_1 = E_g / (E_g + \Delta)$;

$d_2 = 3E_g / (2\Delta + 3E_g)$; $\mu_0^* = -\ln [2(2\pi m_0^* kT)^{3/2} / nh^3]$; $\gamma = kT / E_g$, hold for arbitrary $d(p)$. The measurements were carried out between 90 and 150°K with two n-type InSb single crystals of similar concentrations (1.05 and $1.15 \cdot 10^{15} \text{ cm}^{-3}$). Method and apparatus are described in FTT, 1, 1351, 1959. For $E_g = 0.21 \text{ eV}$ and $\Delta = 0.9 \text{ eV}$, the mean value obtained for m_0^* , temperature independent in the range 100-145°K, was $(0.0143 \pm 0.0007)m$.

With the Eqs. (4), (5) for $\alpha \sim p^2$, $m^* = 0.0175 m$. Within the limits of

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Determination of the effective...

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B102/B104

measuring error, the value for m_0^* obtained agrees with those obtained from measurements of ϵ , from the Faraday effect, and the optical constants. A. I. Ansel'm, B. M. Askerov, and G. Ye. Pikus are thanked for discussions. There are 4 figures and 1 table.

ASSOCIATION: Institut poluprovodnikov AN SSSR Leningrad (Institute of Semiconductors AS USSR, Leningrad)

SUBMITTED: December 20, 1961

Card 4/4

Investigation of the transverse and longitudinal Nernst effect in strong
magnetic fields for samples of n-InSb. I. L. Drichko, I. V. Kochan,
I. V. Smirnova.
(Presented by S. S. Shalyt--20 minutes).

Report presented at the 3rd National Conference on Semiconductor Compounds,
Kishinev, 16-21 Sept 1963

CA

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Alkylation of acyl derivatives of aromatic amines by the Friedel-Crafts reaction. II. Alkylation of acetanilide. G. S. Kolesnikov and T. V. Smirnova (Mendeleev Chem. Technol. Inst., Moscow). *Zhur. Obshch. Khim.* (J. Gen. Chem.) 20, 1427-30 (1950); cf. C.A. 42, 22396. AcNHPh cannot be alkylated with MeI, EtBr, PrBr, BuBr, or t-BuI, CCl in the presence of AlCl₃. However, heating 31 g. AcNHPh, 40 g. AlCl₃, and 150 ml. (CHCl₃)₂ to 60° until a soln. formed, cooling to room temp., dropwise addn. of 27 g. *tert*-BuCl, heating 50 min. at 55-60° and 3 hrs. at 100-120°, and suitable working-up gave 5 g. PhNH₂ and 8.5 g. *tert*-BuC₆H₄NH₂ among the distillable products, and a 20-g. residue of *p*-*tert*-BuC₆H₄NH₂Ac, m. 168-9°, the total yield of alkylated product was 76%, based on converted AcNHPh. The mechanism appears to be: complex formation with AlCl₃ and AcNHPh, followed by further complex formation with RX (iso-BuBr, which also gives a *tert*-Bu deriv. at this stage, isomerizes to the Me₂C radical), and the complex rearranges to the final structure of the alkylated product, with evolution of HX. Apparently only radicals capable of conversion to the tertiary structure are capable of alkylation. G. M. Kosolotoff

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The alkylation of acyl derivatives of aromatic amines by
the Friedel-Crafts reaction. II. The alkylation of acetani-
lide. G. S. Kolesnikov and T. V. Smirnova. *J. Gen. Chem.*
U.S.S.R. 20, 1487-9 (1950) (Engl. translation).—*See* C.A.
45, 2431c.
R. M. S.

1. The following information was obtained from the file of the
JANUARY 1961, in the file of the J. I. KAPLEVICH, (JANUARY 1961) of the
JANUARY 1961, in the file of the J. I. KAPLEVICH, (JANUARY 1961)

1. JANUARY 1961, JANUARY 1961, JANUARY 1961

SMIRNOVA T.V.

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Chemical Abst.
Vol. 48 No. 6
Mar. 25, 1954
Organic Chemistry

✓ Transarylation reaction. G. B. Kolchanikov, V. V. Korshak, and T. V. Smirnova. *Khim. i Fiz.-Khim. Vysokomolekul. Soedineniyam*, 1953, 44-50. — The action of $AlCl_3$ on aromatic compds., $Ar(CRR')$, Ar leads to transarylation in which a low-mol. wt. aromatic hydrocarbon (such as C_6H_6) is eliminated and a high-mol. wt. hydrocarbon is formed. This reaction occurs with $PhCH_3$, $MeCHPh$, $(CH_3Ph)_2$, $CH_3(CH_2Ph)_2$, $(CH_2CH_2Ph)_2$, and 1,2-bis(tetrahydro-2-naphthyl)ethane. The $(CH_3)_2$ and the $(CH_2)_2$ divs. above form indan and tetrahydronaphthalene rings, resp., while other products form polymeric hydrocarbons. The 1st 3 substances also form varying amts. of insol. tridimensional polymer, formed by σ -substitution and chain branching. The polymer from transarylation of $(CH_2Ph)_2$ is destructively acted upon by C_6H_6 in the presence of $AlCl_3$; its mol. wt. declines and $(CH_2Ph)_2$ is formed; an increased amt. of C_6H_6 leads to greater destruction, as does an increased amt. of catalyst $AlCl_3$. G. M. Kosolapoff

Smirnova, T. V.

USSR/ Chemistry - High-molecular compounds

Card 1/2 Pub. 40 - 22/27

Authors : Kolesnikov, G. S.; Korshak, V. V.; and Smirnova, T. V.

Title : High-molecular compounds. Part 70. Growth of chain during
polycondensation reaction in the presence of a catalyst

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 172-178, Jan-Feb 1955

Abstract : It was established experimentally that the polycondensation reaction of
1,2-dichloroethane with benzene in the presence of an $AlCl_3$ catalyst
has an equilibrium and that the state of equilibrium is determined by the
ratio of all basic substances involved in the reaction. Complete des-
truction was observed in the case of polyphenyleneethyl exposed to
benzene in the presence of an $AlCl_3$ catalyst.

Institution : Acad. of Sc., USSR, The N. D. Zelinskiy Inst. Of Org. Chem.

Submitted : January 27, 1954

Card 2/2 Pub. 40 - 22/27

Periodical : Izv. AN SSSR. Otd. khim. nauk 1, 172-178, Jan-Feb 1955

Abstract : The basic rules of this destructive reaction are explained. The rate of growth of the chain, relative to the rate of destruction during the polycondensation, is described. Nine USSR references (1944-1951). Tables; graphs.

SMIRNOVA, T. V.

High-molecular-weight compounds. XIX. Pol-
condensation of methylene chloride with benzene. G. S.
Kolesnikov, V. V. Korshak, and T. V. Smirnova (Inst.
Heterocycl. Compds., Moscow). *Izv. Akad. Nauk
S.S.S.R., Otdel. Khim. Nauk* 1957, 375-82, cf. C.A. 50,
16754, 16704. Condensation of C_6H_6 with CH_2Cl_2 in the
presence of $AlCl_3$ was examined. The reaction yields a poly-
mer with dihydronaphthalene units in the chain. These
units cause cessation of chain growth and prevent the forma-
tion of branched and tridimensional polymers. With 2.26
mole-% $AlCl_3$ and the reaction being run at 50° 1 hr. then
1-1.5 hrs. at 100° , the increase of the ratio of CH_2Cl_2 ,
 C_6H_6 from 0.5 to 1.1 results in a declining yield of Ph_2CH ,
(from 21.4 to 8.8%) and of m- and p- $C_6H_4(CH_2Ph)_2$ (from 13.2
to 0.7%), and increasing yield of the polymer, composed
primarily of $C_6H_4CH_2$ links (21.6-29.8%). The mol. wt.
of the latter ranged from 970 to 1400. G. M. K.

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SMIRNOVA, T.V.

AUTHORS: Kolesnikov, G.S., Korshak, V.V., Smirnova, T.V. 62-12-3/20

TITLE: The Synthesis of Polyarylene Alkyls (Sintez poliarilenalkilov)
Information 1. The Polycondensation of Ethylene Chloride with Halide
Derivatives of Benzene (Soobshcheniye 1. Polikondensatsiya
khloristogo metilena s goidoproizvodnymi benzola)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1957, Nr 12,
pp. 1478-1481 (USSR)

ABSTRACT: In the papers hitherto published the influence exercised by the
existing substituents in aromatic hydrocarbons upon the course taken
by the process of polycondensation of these hydrocarbons with 1,2
dichlorine ethane [2-5] was described. In order to determine the
above mentioned influence in aromatic hydrocarbons on the process of
the polycondensation of these hydrocarbons with ethylene chloride
this investigation was carried out. The method employed was the same
as in the case of the condensation of methylene chloride with halide
derivatives of benzene. The following is said by the authors about
the results obtained by this investigation: The monohalide deri-
vatives of benzene enter into polycondensation reaction with ethylene
chloride in the presence of aluminum chloride. Polycondensation

Card 1/2

The Synthesis of Polyarylene Alkyls. Information 1.
The Polycondensation of Ethylene Chloride With Halide
Derivatives of Benzene

62-12-8/20

develops in a similar manner as that of methylene chloride with benzene (see tables 1 and 2). In the polycondensation of methylene chloride with bromo-benzene p-dibromo-benzene was found as a basic low-molecular reaction product. Its formation is due to the condition of the bromine atom from a molecule of bromo-benzene to another under the influence of aluminum chloride. Besides p-dibromo-benzene dibromo-phenyl methane is formed as a low-molecular product of the reaction (by oxidation dibromo-benzophenon was obtained). The presence of the halide atom, by the way, exercises no considerable influence upon the course taken by polycondensation. There are 2 tables, and 8 references, 5 of which are Slavic.

ASSOCIATION: Institute for Element-Organic Compounds AN USSR (Institut elementoorganicheskikh sovedineniy Akademii nauk SSSR).

SUBMITTED: July 30, 1956

AVAILABLE: Library of Congress

Card 2/2 1. Ethylene chlorides 2. Benzene-Halide derivatives
3. Polycondensation

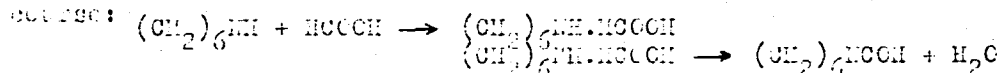
79-11-26/56

AUTHORS: Kolesnikov, G. S. , Smirnova, E. V. , Mironikh, L. I. , Mikhaylovskaya, N. N. , Shcherbo, L. I.

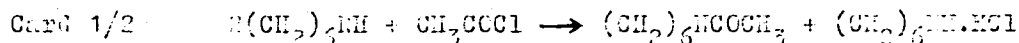
TITLE: Derivatives of Hexamethylenimine. II. Synthesis of the Hexamethylenamides of Organic Acids (Polevedeniya geksametiliminina. II. Sintez geksametilenamidov organicheskikh kislot)

PERIODICAL: Zhurnal Obshchey Khimii, 1957, Vol. 27, No. 11, pp. 3005 - 3009 (USSR)

ABSTRACT: Continuing the investigation in the field of the synthesis of hexamethylenimine-derivatives the authors attempted to obtain and characterize the hexamethylenamides of organic acids. In patent publications only, the use of the hexamethylenimine of formic acid as a solvent of polyacrylonitrile is disclosed, nothing else. The reaction between hexamethylenimine and formic acid, after hydration of the primary salt of the two compounds, takes the following course:



The hexamethylenamide of acetic acid is obtained by action of an excess of hexamethylenimine upon acetyl chloride:



7.-11-27/56

Derivatives of Hexamethylenimine. II. Synthesis of the Hexamethylenamides of Organic Acids

In this manner the hexamethylenamides of acetic acid, carbonic acid, fluoracetic acid, chloracetic acid, bromacetic acid, iodoacetic acid, and β -bromopropionic acid (7) are prepared, those of meta-crylic acid and benzenesulfonic acid from their chloranhydrides with hexamethylenimine in the presence of pyridine. Only one of the 12 synthesized hexamethylenamides had been described earlier. There are 1 table, and 4 references, 1 of which is Slavic.

ASSOCIATION: Moscow Chemico-Technological Institute
(Moskovskiy khimiko-tekhnologicheskii institut)

SUBMITTED: December 3, 1956

AVAILABLE: Library of Congress

1. Hexamethylenimine-Derivatives 2. Hexamethylenamides-Synthesis

Card 2/2

SMIRNOVA T.V.

AUTHORS: Kolesnikov, G. S., Korshak, V. V. Smirnova, T. V., 62-1-14/29

TITLE: Synthesis of Polyarylenealkyles (Sintez poliarilenalkilov)
Report 2: The Polycondensation of 1,2-Dichloroethane with Diaryl-
alkanes (Soobshcheniye 2. Polikondensatsiya 1,2-dikhloretana s
diarilalkanami)

PERIODICAL: Izvestiya AN SSSR Otdeleniye Khimicheskikh Nauk, 1958,
Nr 1, pp 85 - 87 (USSR)

ABSTRACT: As was shown already earlier, 1,2-dichloroethane forms in pre-
sence of chlorine-aluminum beside the high-molecular products
of polycondensation 1,2-diphenylethane and bis-(phenylethyl)
benzene which are apparently the first low-molecular products
of this reaction. In order to prove this assumption, the authors
investigated the polycondensation of the 1,2-dichloroethane with
1,2-diphenylethane in presence of chlorine aluminum. The method
was the same, except a deviation (reference 1). Tables 1 and 2
show the experimental results. From the polycondensation of the
1,2-diphenylethane polyphenyleneethyl (with a much higher mo-
lecular weight) is formed, obtained by polycondensation of the
1,2-dichloroethane with benzene. 1,2-dichloroethane enters into
the reaction of polycondensation not only with 1,2-diphenylethane,
but also with diphenyl (however, not with diphenylmethane).

Card 1/2

Synthesis of Polyarylenealkyles. Report 2:

The Polycondensation of 1,2-Dichloroethane with Diarylalkanes

62-1-14/29

There are 2 tables, and 3 Slavic references.

ASSOCIATION: Institute of Elemental-Organic Compounds, AS USSR (Institut
elementoorganicheskikh soyediniy, Akademiya Nauk SSSR)

SUBMITTED: June 30, 1956

AVAILABLE: Library of Congress

1. Arylenealkyles-Synthesis
2. 1,2-Dichloroethane-Condensation reactions
3. Diarylalkanes-Condensation reactions

Card 2/2

5(3)

SOV/153-56-2-14/30

AUTHORS:

Smirnova, T. V., Dukel'skaya, N. M., Kondrat'yev, A. A.

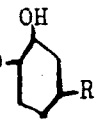
TITLE:

Synthesis of Some Physiologically Active Substances (Sintez nekotorykh fiziologicheskii aktivnykh veshchestv)

PERIODICAL:

Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp 82-86 (USSR)

ABSTRACT:

It is known from literature that compounds of the type RO- where R = CH₃-, C₂H₅-, C₄H₉-, C₃H₇-, are physiologically active and exert an insecticidal effect (Ref 1). It was found that the introduction of such groups as OH and OR into the molecule of an organic compound provide this substance with physiological activity. For instance, if the -OH-group is introduced into the nucleus of an aromatic compound, this compound is often provided with a protoplasmatic effect; the introduction of -OR, on the other hand, increases the effect exercised by the resulting compound upon the nervous system. If a halogen atom is introduced into the molecule of an organic compound the physiological activity of the latter is multiplied, particularly in the case of fluorine introduction (Ref 3).

Card 1/3

Synthesis of Some Physiologically Active Substances

SOV/153-58-2-14/30

The purpose of this paper was the synthesis of some physiologically active compounds which are used for deratization. 6 halogen derivatives of phenyl ether were produced (Table 1). All these compounds were synthesized according to the same method (see experimental section). The halogen derivatives of phenols or the phenol itself were condensed with the corresponding 1,2-dihalide-ethane. In the laboratory of the faculty mentioned under "Association" the toxic properties of the synthesized phenyl-ethyl ether were tested. The most toxic compound was p-chloro-phenyl- β -fluoroethyl-ether which was able to kill within 3-7 hours 100% of adult rats if administered perorally in a dosage of 0,005 ml. All of the 6 compounds listed possess a strong etheric odor which complicates their use in deratization. In order to overcome this difficulty, the synthesis of p,p'-di(β -fluoro-ethoxy-phenyl)-dimethyl-methane was carried out. This is a solid odorless compound and has stood its test. Its lethal dosis for white rats is 120-140 mg/kg, for voles - 0,25 mg/100 g live weight. Thus it is valuable also in the destruction of rodents in the fields. There are 2 tables and 5 references, 3 of which are Soviet.

Card 2/3

Synthesis of Some Physiologically Active Substances

SOV/153-58-2-14/30

ASSOCIATION: Moskovskiy khimiko-tekhnologicheskii institut imeni D. I. Mendeleyeva i Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni M. V. Lomonosova (Moscow Institute of Chemical Technology imeni D. I. Mendeleyev and Faculty of Biology and Soil-Science of the Moscow State University imeni M. V. Lomonosov)

SUBMITTED: October 4, 1957

Card 5/5

AUTHORS: Kolesnikov, G. S., Korshak, V. V. SOV/62-58-6-19/37
Smirnova, T. V.

TITLE: The Synthesis of Polyarylene Alkyls (Sintez poliarilenalkilov)
Communication 8. The Transarylation of Diphenyl Methane
(Soobshcheniye 8. Perearilirovaniye difenilmetana)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk,
1958, Nr 6, pp. 767-770 (USSR)

ABSTRACT: Two of the authors of the present paper have already described
(Refs 1,2) the investigation of the reaction of the
transarylation of 1,2-diphenyl ethane in the presence of
aluminum chloride, on which occasion they solved the problem
of the influence exercised by the temperature of the reaction
and concentration of the catalyst upon the development of the
process. In the course of the present paper they describe the
investigation of the transarylation of diphenyl methane in the
presence of aluminum chloride at various temperatures and
concentrations of the catalyst. For this purpose the authors
carried out a number of experiments during which the
concentration of the catalyst and the duration of the reaction
remained constant. The results obtained are shown by table 5.

Card 1/3

The Synthesis of Polyarylene Alkyls. Communication
8. The Transarylation of Diphenyl Methane

SOV/62-58-6-19/37

In-so-far as the reaction of the transarylation of diphenyl methane is a catalytic process, transarylation experiments are carried out (at 900°) for the duration of the reaction at different concentrations for the purpose of determining the influence exercised by the concentration of the catalyst. The results obtained by these experiments are shown by tables 2, 6 and 7. In conclusion, the authors assume that the mechanism of the transarylation of diphenyl methane is similar to that of the transarylation of 1,2-diphenyl ethane. A difference exists solely with respect to the possibility of the formation of dihydroanthracene cycles at the end of the growing chain (as well as in the middle of the chain). There are 7 tables and 6 references, 5 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Elemental-organic Compounds AS USSR)

SUBMITTED: November 20, 1956

Card 2/3

The Synthesis of Polyarylene Alkyls.

SOV/62-58-6-19/37

Communication 8. The Transarylation of Diphenyl Methane

1. Diphenyl methane--Synthesis
2. Aluminum chloride catalysts--Performance

Card 3/3

AUTHORS: Kolesnikov, G. S., Korshak, V. V., SOV/62-55-9-17/26
Smirnova, T. V.

TITLE: Synthesis of the Polyarylene Alkyls (Sintez poliarilenalkilov)
Communication 9: Synthesis and Aryl Group Interchange in
Monofluoro and Monochlorodiphenylmethane (Soobshcheniye 9.
Sintez i perearilirovaniye monoflor- i monokhlordifenil-
metanov)

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk,
1958, Nr 9. pp 1123 - 1126 (USSR)

ABSTRACT: The authors attempted to determine whether only the
non-substituted diaryl alkanes but also their derivatives
undergo aryl group interchange reactions. For these in-
vestigations they synthesized the monohalogen derivative
of diphenylmethane, as well as the meta- and para-chloro
and meta- and para-fluoro derivatives of diphenylmethane.
It was shown that aryl groups in these compounds can be
replaced by other aryl groups by warming in the presence
of aluminum chloride. m-chloro, m-fluoro, and p-fluoro-
diphenylmethanes were synthesized for the first time.

Card 1/2 It was found that the presence of a halogen atom weakens

Synthesis of the Polyarylene Alkyls. Communication 9: SOV/62-55-9-17/26
Synthesis and Aryl Group Interchange in Monofluoro and Monochlorodiphenyl-
methane

the bond between the methylene group and the substituted aromatic nucleus. Halogen atoms which are meta to the methylene group exert no effect on the stability of this bond. There are 2 tables and 7 references, 6 of which are Soviet.

ASSOCIATION: Institut elementoorganicheskikh soedineniy Akademii nauk SSSR
(Institute of Elemental-organic Compounds, AS USSR)

SUBMITTED: February 14, 1957

Card 2/2

BORISOVA, K.V., inzh.; OVECHENKO, N.G., inzh.; SMIRNOVA, T.V., kand.
tekhn.nauk; LEVASHEVA, E.M., studentka; NAD', I., student

Plasticizers from chemical by-products for polyvinyl chloride.
Izv.vys.ucheb.zav.; tekhn.leg.prom. no.1:57-61 '59.
(MIRA 12:6)

1. Moskovskiy tekhnologicheskii institut legkoy promyshlennosti.
Rekomendovana kafedroy tekhnologii iskusstvennoy kozhi.
(Plastics) (Plasticizers)

SMIRNOVA, T.V.; DUKEL'SKAYA, N.M.; GORBUNOVA, V.P.; SHITOV, L.N.;
NAUMOVA, I.I.

Analogues of warfarin and their rodenticide properties. Izv.vys.
ucheb.zav.; khim.i khim.tekh. 5 no.1:107-111 '62. (MIRA 15:4)

1. Moskovskiy khimiko-tekhnologicheskoy institut imeni Mendeleyeva
i Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo
universiteta imeni Lomonosova.
(Warfarin)

SMIRNOVA, T.V.; DUKEL'SKAYA, N.M.; NAUMOVA, I.I.

Synthesis of 3-[α -(p- β -fluoroethoxyphenyl)- β -acetylethyl]-
4-hydroxycoumarin and its toxic properties. Izv.vys.ucheb.zav.;-
khim.i khim.tekh. 5 no.2:289-291 '62. (MIRA 15:8)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni D. I.
Mendeleeva i Moskovskiy gosudarstvennyy universitet imeni
Lomonosova.

(Coumarin)

SMIRNOVA, T.V.; NAUMOVA, I.I.; ANDREYEVA, V.A.

Preparation of some amino- and alkyl-substituted
phenyl- β -fluoroethyl ethers. Zhur. VKHO 7 no.6:710-712
'62. (MIRA 15:12)

1. Moskovskiy khimiko-tekhnologicheskii institut imeni
D.I. Mendeleeva.

(Ethers)

SMIRNOVA, T.V.; NAUMOVA, I.I.; SAZONOVA, I.V.

Synthesis of some halogenated p -fluoroethyl phenyl ethers. Zhur.
VKHO 8 no.1:115-116 '63. (MIRA 16:4)

1. Moskovskiy khimiko-tekhnologicheskij institut imeni D.I.
Mendeleeva.

(Ethers)

(Halogen compounds)

SMIRNOVA, T. V.; POPOV, G. L.

Synthesis of some ethers of glycerol. Zhur. ~~VAKO~~ 8 no. 2:232-234
'63. (MIRA 16:4)

1. Moskovskiy khimiko-tehnologicheskoy institut imeni D. I.
Mendeleeva.

(Glycerol) (Ethers)